

REMARKS

Reconsideration of this patent application is respectfully requested in view of the foregoing amendments, and the following remarks.

The amendments to this patent application are as follows. A new title for the invention has now been provided and is directed to the suggested title on page 5 of the Office Action. The Abstract has been amended to include further information as suggested on page 5 of the Office Action. The Specification has been amended on pages 17 to 18 and 19 to 20 in order to provide generic terminology and the proper use of trademarks.

The amendments to the claims are to cancel product claims 1 to 8 and to replace them by inserting new claims 17

to 25. Support for any newly added and recited terminology is found in the present Specification.

In new claim 17, the increased expression of an yfiK-gene or of a gene of an yfiK homologue is disclosed on page 5, last paragraph of the present Specification.

Original claim 2 has now been split into new claims 18, 19 and 20.

New claim 21 is equivalent to original claim 3.

New claim 22 is equivalent to original claim 4.

New claim 23 is equivalent to original claim 5 limited to a defined pACYC derivative disclosed on page 10, second paragraph of the present Specification.

New claim 24 is equivalent to original claim 7, but is limited to the deregulation of cysteine metabolism by a serine O-acetyl transferase being subject to a reduced feedback inhibition by L-cysteine. This is disclosed on page 3 of the Specification.

New claim 25 is equivalent to original claim 8, but is limited by the features of new claim 24.

Reconsideration and withdrawal are respectfully requested for the objections and rejections under 35 U.S.C. 112, both the first paragraph and the second paragraph.

On page 4 of the Office Action, the Specification was objected to because of the improper use of trademarks.

Thus, the generic terminology for these trademarks is properly set forth in brackets: QIAQUICK ® (DNA-extraction

kit); BIOSTAT ® (fermenter); LUNA ® (HPLC-column), in the amendment to pages 17, 18, 19 and 20 of the Specification.

On pages 4 and 5 of the Office Action, the title of the invention has been revised as suggested by the Patent Examiner.

On page 5 of the Office Action, the objection to claim 4 has been overcome by newly added claim 22.

Regarding paragraph 10 on pages 5 and 6 of the Office Action, the amended claims are limited to defined members of the phosphoglycerate family. Regarding paragraph 11 on page 6 of the Office Action, this objection is no longer pertinent for the amended wording of the new claims.

Regarding paragraph 12 on page 7 of the Office Action, the yfiK gene is not an undefined acronym in the art, but is

a well defined gene. This can be seen from the literature cited on page 6, second paragraph of the present Specification of the present application. From a further publication a postulation for a function of the yfiK protein is known (see page 6 of the present Specification, fifth line from the bottom). The yfiK gene is further defined in the application by SEQ. ID No: 1 and the homologues of the yfiK gene are defined on page 7, last paragraph. From these definitions in the present Specification it is clear what is meant by the phrases yfiK gene and yfiK homologue gene.

Regarding paragraph 13 on pages 7 to 8 of the Office Action, claims 3 and 4 have been cancelled and replaced by new claims 21 and 22. New claim 21 recites "the copy number" and new claim 23 recites "the promoter".

Regarding paragraph 14 on page 8 of the Office Action, claim 4 has been cancelled and replaced by new claim 22, which recites the Markush group language suggested by the Patent Examiner.

Regarding paragraph 15 on pages 8 and 9 of the Office Action, claim 7 was cancelled and has been rewritten as new claim 23, which is now limited to a pACYC vector. The Patent Examiner states on page 9 first line of the Office Action that a pACYC vector is known in the art. Therefore the objection directed to the term "derivative" has now been overcome.

Regarding paragraph 16 on pages 9, 10 and 11 of the Office Action, the yfiK gene product is not part of the claims any more, so the objections related to the yfiK gene product are no longer pertinent. Moreover, according to the Office Action on page 9, last paragraph, the requirements of the decision University of California v. Eli Lilly requires a precise definition ... of the claimed subject matter. The amended claims do not recite a yfiK gene or a yfiK protein. Hence, it is believed that this cited decision is no longer pertinent for the requirements of the Patent Examiner under paragraph 16.

The language on page 10, first paragraph of the Office Action refers to several necessities to characterize the claimed molecules. The present claims do not recite any of these molecules.

Quite to the contrary, the present application relates to the fact that the yfiK gene as well as the yfiK gene product are known in the art (See page 6, second paragraph to end of page 7 of the present Specification). Hence, it is believed that this court decision has no basis for any objections by the Patent Examiner.

As the Patent Examiner correctly states, pages 17 and 18 show one example for the cloning of an yfiK gene. The following examples show that the present invention is operable. So the present application shows in the examples that the increased expression of an yfiK-gene in a genetically modified microorganism strain is suitable for fermentative production of O-acetyl-L-serine, N-acetyl-L-serine, L-cysteine, and LL-cystine. This is what the present

invention claims. Because it is clearly within the disclosure of the present application to use mutated yfiK-genes the present claims recite yfiK-gene homologues, also. This concept is clearly defined on page 7 of the application (last two sentences). So this wording is also clearly defined in the present application; and the respective rejection on page 10, second paragraph of the Office Action is thusly overcome.

The objection to claim 7 on page 10, last paragraph of the Office Action is no longer relevant, because the new claim 24 directed to a plasmid is limited to a defined pACYC derivative.

Regarding paragraph 17 on pages 11, 12, and 13 of the Office Action, it is not necessary for a person skilled in the art to find other yfiK genes or to use other genetic elements for the deregulation of the cysteine metabolism as disclosed in the present application. This is because the genetic elements disclosed in the application have utility as shown in the examples of the present application. The only

reason to look for other yfiK genes or other genetic elements for the deregulation of the cysteine metabolism is to circumvent the present invention. As long as a person skilled in the art uses the combination of a yfiK gene, and a deregulated cysteine metabolism, in a microorganism to make O-acetyl-L-serine, N-acetyl-L-serine, L-cysteine, LL-cystine, this person uses the teaching of the present invention. Therefore the now presented wording of the claims exactly covers the scope of the present invention and any limitation of the claims to a single yfiK gene or any kind of deregulated cysteine metabolism is an unnecessary limitation which allows the circumvention of the claims based upon using the Applicant's teachings of the invention against the Applicant.

Regarding the claim rejection under 35 U.S.C. 101 as being non-statutory, the addition of the words "genetically modified" added to claim 17 should overcome this rejection.

Regarding the claim rejection under 35 U.S.C. 102 as anticipated by *Franke*, a certified translation of the priority document has been ordered to overcome this rejection and will be filed in the U.S.P.T.O. as soon as possible.

The rejection of claims 1 to 6 and 8 as being anticipated by *Livshits et al.* is not pertinent any more because claim 6 has been deleted and claim 8 was rejected because of its dependency upon claim 6. *Livshits* is not relevant for new claims 17 to 25 because the *E. coli* strains of *Livshits* are not suitable for fermentative production of amino acids of the phosphoglycerate family. The statement of the Patent Examiner on page 17, third paragraph is not correct. *Livshits* discloses the opposite on paragraph [0062]: These results indicate that except for YahN each of the presumed transporters have specificity to several substrates (amino acids and amino acid analogues).

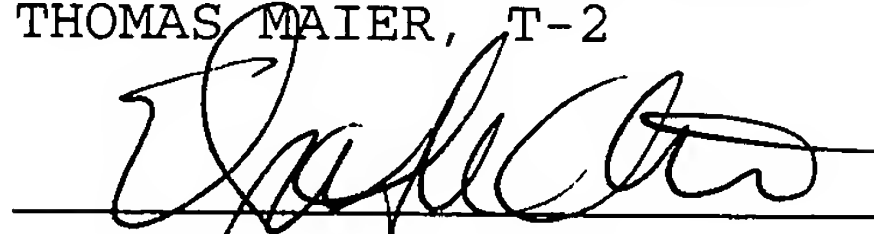
Example 2 of *Livshits* shows that yfiK has no effect with several substrates (Arginine, 4-Azanorleucine).

Example 5 of *Livshits* shows that yfiK is productive with Threonine and Alanine. but it is contraproductive (inhibiting) for Valin and Isoleucine. So from the data of *Livshits* no prediction for the production of O-acetyl-L-serine, N-acetyl-L-serine, L-cysteine, LL-cystine by using an increased expression of the yfiK gene is possible. The conclusions of the Patent Examiner with regard to *Livshits* are therefore respectfully traversed.

In conclusion, the present invention, and all the claims, are not anticipated under 35 U.S.C. 102 and are believed to be patentable under 35 U.S.C. 103 over all the prior art cited by the Patent Examiner.

A prompt notification of allowability is respectfully
requested.

Respectfully submitted,
THOMAS MAIER, T-2



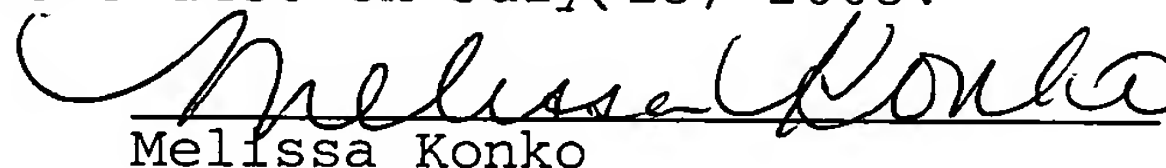
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Melissa Konko